

CLAIMS

What is claimed is:

1. Apparatus for cooling and dispensing water or other beverages comprising

a reservoir means for holding a liquid,

a refrigeration means for cooling the liquid in the reservoir means, and

a dispenser means for dispensing liquid from the reservoir means, wherein.

5 the reservoir means has an upper portion and a lower portion,

the refrigeration means includes a chiller operatively associated with the lower portion of the reservoir means, and

the dispenser means includes a flow path means for defining a liquid flow path from the lower portion of the reservoir means to an outside of the cooler and dispenser unit,

10 wherein the reservoir means includes

a collapsible bag for containing the liquid, and

a sidewall supporting the collapsible bag.

2. Apparatus as in claim 1 wherein

the sidewall supporting the collapsible bag is thermally insulated or is constructed of a thermally insulating material.

3. Apparatus as in claim 1 wherein

the sidewall supporting the collapsible bag is of one-piece construction.

4. Apparatus as in claim 1 wherein the chiller has a chiller surface which supports a lower portion of the collapsible bag and at least a portion of the chiller surface is sloped with respect to vertical.

5. Apparatus as in claim 4 wherein the chiller has an opposed pair of chiller surface portions which are sloped with respect to vertical and form a U-bend.

6. Apparatus as in claim 4 wherein the chiller surface which supports the lower portion of the bag is generally trough-shaped.

7. Apparatus as in claim 6 wherein the chiller has an insulated chiller surface opposite from the chiller surface supporting the bag.

8. Apparatus as in claim 7 wherein the insulated chiller surface is generally flat.

9. Apparatus as in claim 2 wherein an outer wall of the chiller is received in a lower portion of the sidewall supporting the insulated bag.

10. Apparatus as in claim 1 wherein the flow path means includes a fixture carried by the sidewall of the collapsible bag.

11. Apparatus as in claim 10 wherein the fixture includes a flexible nozzle-plate of greater rigidity than the sidewall on which it is carried, said nozzle-plate having an outwardly facing surface and at least one outwardly-directed nozzle carried on the outwardly facing surface, said nozzle-plate and said nozzle defining a flow path for liquid through the sidewall of the collapsible bag.

12. Apparatus as in claim 11 wherein the flow path means further includes a valve assembly unit attached to the nozzle and operable to selectively stop and start flow of liquid through said flow path.

13. Apparatus as in claim 12 wherein the valve assembly unit comprises a valve-plate having a front side and a back side and a faucet protruding from the front side, said faucet and valve plate defining a flow path for liquid through the valve assembly unit from a liquid inlet on the back side of the valve-plate to an outlet at an outlet end of the faucet, wherein the nozzle carried by nozzle-plate sealingly engages the liquid inlet on the back side of the valve-plate.

14. Apparatus as in claim 13 further comprising an insulating plate positioned between the valve plate and the nozzle plate.

15. Apparatus as in claim 13 wherein the outwardly facing surface of said nozzle-plate further defines a plurality of latch elements and the back side of the valve plate carries a matching plurality of latch elements engaged with the plurality of latch elements on the nozzle-plate so that the valve-plate is latched to the nozzle-plate.

16. Apparatus as in claim 15 wherein the sidewall supporting the collapsible bag has an upper end and a lower end, a front side and a back side, and a notch in the front side extending from the upper end which receives the valve-plate, so that the nozzle-plate can be latched to the valve-plate to form an assembly which can be slid into location in the notch.

17. Apparatus as in claim 10 wherein the collapsible bag is formed from a thermoplastic film and has a front side wall, a back side wall, a bottom wall, and a pair of pleated side walls, wherein the sidewall which carries the fixture through which liquid is withdrawn from the bag is the front side wall, and the bottom wall of the collapsible bag rests on the chiller.

18. Apparatus as in claim 13

wherein the nozzle-plate has a second outwardly-directed nozzle carried on the outwardly facing surface, said nozzle-plate and said second outwardly-directed nozzle defining a second flow path for liquid through the sidewall of the collapsible bag,

5 wherein the valve-plate has second faucet protruding from the front side, said second faucet and valve plate defining a flow path for liquid through the valve assembly unit from a second liquid inlet on the back side of the valve-plate to an outlet at an outlet end of the second faucet,

10 and means for defining a liquid flow path between the second outwardly-directed nozzle and the second liquid inlet on the back side of the valve-plate.

19. Apparatus as in claim 18 wherein

the means defining the liquid flow path between the second outwardly directed nozzle and the second liquid inlet comprises,

a heater,

5 a first conduit extending between the second outwardly directed nozzle and the heater, and a second conduit extending between the heater and the second liquid inlet, whereby heated liquid can be dispensed from the second faucet.

20. Apparatus as in claim 19 further comprising

a first quick-connect coupler forming a portion of the first conduit, and

a second quick-connect coupler forming a portion of the second conduit,
so that the flow path means between the second liquid inlet and the second outwardly directed
nozzle can be quickly connected or disconnected.

21. Apparatus as in claim 19 wherein the heater is positioned beneath the chiller.

22. Apparatus for cooling and dispensing water or other beverages comprising

a reservoir means for holding a liquid,

a refrigeration means for cooling the liquid in the reservoir means, and

a dispenser means for dispensing liquid from the reservoir means, wherein.

5 the reservoir means has an upper portion and a lower portion,

the refrigeration means includes a chiller operatively associated with the lower portion of the
reservoir means, and

the dispenser means includes a flow path means for defining a liquid flow path from the lower
portion of the reservoir means to an outside of the cooler and dispenser unit,

10 wherein the chiller is configured to non-uniformly remove heat from the liquid in the reservoir
means, thereby causing convection currents which prevent thermal stratification of the liquid
in the reservoir means.

23. Apparatus as in 22 wherein

the chiller has a chiller surface facing the liquid in the reservoir means, at least a portion of which is sloped with respect to vertical.

24. Apparatus for cooling and dispensing water or other beverages comprising

a reservoir means for holding a liquid,

a refrigeration means for cooling the liquid in the reservoir means, and

a dispenser means for dispensing liquid from the reservoir means,

5 wherein

the reservoir means has an upper portion and a lower portion,

the refrigeration means includes a chiller operatively associated with the lower portion of the reservoir means, and

10 the dispenser means includes a flow path means for defining a liquid flow path from the lower portion of the reservoir means to an outside of the cooler and dispenser unit,

said apparatus further comprising a housing supporting the chiller, and

a container for liquids positioned in the housing for receiving downwardly falling droplets of condensate and leakage.

25. Apparatus as in claim 24 wherein said refrigeration means further comprises a compressor positioned in the housing beneath the container.

26. Apparatus as in claim 24 further comprising a means for indicating when a liquid level in the container has exceed a predetermined limit.

27. Apparatus as in 26 wherein the means for indicating comprises a sensor operatively associated with an inside of the container for sensing when a liquid level in the container has exceeded a predetermined limit and producing an output signal in response thereto and an alarm device operatively associated with the sensor for producing an alarm signal in response to the output signal from the sensor.

28. Apparatus as in claim 24 wherein the container is slidably received in the housing.

29. Apparatus as in claim 28 wherein the housing has a front side and a back side, wherein the container is slidably received in an opening in the front side of the housing, wherein the refrigeration means further comprises a condenser coil positioned on a back side of the housing.

30. Apparatus as in claim 29 wherein the condenser coil is generally panel-shaped and the back side of the housing further defines a generally panel-shaped recess for receiving the condenser coil, said condenser coil being positioned in said recess.

31. Apparatus for cooling and dispensing water or other beverages comprising

a reservoir means for holding a liquid,

a refrigeration means for cooling the liquid in the reservoir means, and

a dispenser means for dispensing liquid from the reservoir means, wherein.

the reservoir means has an upper portion and a lower portion,

the refrigeration means includes a chiller operatively associated with the lower portion of the reservoir means, and

the dispenser means includes a flow path means for defining a liquid flow path from the lower portion of the reservoir means to an outside of the cooler and dispenser unit,

10

wherein the reservoir means includes

a collapsible bag for containing the liquid, and

a sidewall supporting the collapsible bag,

said apparatus further comprising a lid positioned on the upper end of the sidewall supporting the collapsible bag.

32. Apparatus as in claim 31 wherein the lid has a central opening.

33. Apparatus as in claim 32 wherein the collapsible bag for containing the liquid has an open upper end which is rolled over an upper end of the sidewall supporting the collapsible bag and the lid sandwiches the upper end of the collapsible bag between the upper end of the sidewall and the lid.

34. Apparatus as in claim 33 further comprising a water bottle positioned upside down partially through the central opening of the lid to supply water to the inside of the collapsible bag.

35. Apparatus as in claim 33 further comprising
a filtration module positioned in covering relationship with the lid, said filtration module having an inlet for receipt of water from a building water system, at least one filter to filter

the received water, and an outlet to supply filtered water through the central opening of the
5 lid to the inside of the collapsible bag,
an inlet valve to control flow of water through the filtration module,
means for sensing when a liquid level in the collapsible bag has fallen to a predetermined
lower limit and producing an output signal in response thereto to open the inlet valve and
cause flow of water through the filtration module and into the collapsible bag, and sensing
10 when the liquid level in the collapsible bag has risen to a predetermined upper limit and
terminating the output signal to close the inlet valve and stop flow of water into the
collapsible bag.

36. Apparatus as in claim 33 further comprising

a filtration module positioned alongside the sidewall supporting the collapsible bag, said
filtration module having an inlet for receipt of water from a building water system and at least
one filter to filter the received water,

5 an outlet conduit means to supply filtered water from the filtration module to the inside of the
collapsible bag,

a water supply line to carry water from the building water system to the filtration module,

a coupling to connect the water supply line to the inlet of the filtration module,

a valve to control flow of water through the water supply line,

10 a means for sensing when a liquid level in the collapsible bag has fallen to a predetermined
lower limit and producing an output signal in response thereto to open the valve and cause
flow of water through the filtration module and into the collapsible bag, and sensing when the
liquid level in the collapsible bag has risen to a predetermined upper limit and terminating the
output signal to close the valve and stop flow of water into the collapsible bag.

37. Apparatus as in claim 36 wherein the coupling is a quick-connect coupling so that the
filtration module can be quickly connected and disconnected from the water supply line.

38. Apparatus as in claim 37 wherein the outlet conduit means includes a conduit section mounted to the lid to supply filtered water to the inside of the collapsible bag and a quick-connect coupling to connect such conduit section to the filtration module.

39. Apparatus as in claim 35 wherein the means for sensing comprises a pressure switch positioned between the outside of the collapsible bag and the sidewall supporting the collapsible bag near a lower portion of the collapsible bag, said pressure switch beginning to transmit an electrical signal to actuate the valve when sensed pressure falls to a predetermined lower limit and ceasing to transmit the electrical signal when sensed pressure reaches a predetermined upper limit.

40. Apparatus as in claim 39 wherein the collapsible bag for containing the liquid has a sidewall which carries a fixture through which liquid is withdrawn from the bag, said fixture including a flexible nozzle-plate of greater rigidity than the sidewall on which it is carried, said nozzle-plate having an outwardly facing surface and at least one outwardly-directed nozzle carried on the outwardly facing surface, said nozzle-plate and said nozzle defining a flow path for liquid through the sidewall of the collapsible bag, said flow path opening into an inside of the collapsible bag near an upper portion of the collapsible bag above the predetermined upper water limit,

said apparatus further comprising a housing supporting the chiller, a container for liquids positioned in the housing, a means for indicating when a liquid level in the container has exceed a predetermined limit, and a conduit for conveying overflow liquid from the nozzle to the container.

41. Apparatus as in claim 31 further comprising a housing supporting the chiller, said refrigeration means further comprising a compressor positioned in the housing.

42. Apparatus as in claim 41 further comprising

a cover at least partially laterally surrounding the housing, the chiller, and the sidewall supporting the collapsible bag.

43. Apparatus as in claim 42 wherein the refrigeration means further comprises a condenser coil positioned on a back side of the housing and the cover defines a passage to permit air circulation over the condensing coil.

44. Apparatus as in claim 43 wherein

the flow path means includes a fixture carried by the sidewall of the collapsible bag and a valve assembly unit attached to the fixture and operable to selectively stop and start flow of liquid through said flow path, wherein the cover further defines a passage to permit access to the valve assembly unit.

45. Apparatus as in claim 44 wherein the passage to permit access to the valve assembly unit is further positioned in a recess defined by the cover, said cover further forming a trough at a lower end of the recess to capture spillage from the dispensing of liquid from the valve assembly unit.

46. Apparatus as in claim 44 wherein the cover further includes a lid positioned on an upper end thereof.